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**William J. Adams, Ph.D.**  
Director, Environmental Affairs

m/035/002  
NRDC

**Kennecott**

March 8, 2002

Don A. Ostler, PE  
Director  
Division of Water Quality  
Utah Department of Environmental Quality  
P.O. Box 144870  
Salt Lake City, Utah 84114-4870

**RECEIVED**

MAR 12 2002

DIVISION OF  
OIL, GAS AND MINING

Dear Mr. Ostler:

Subject: **Bingham Canyon Mine and Leach Collection System Groundwater Discharge Permit No. UGW350010 – Transmittal of the Reports Titled “A Conceptual Model of Flow and Solute Transport Under the Eastside Waste Rock Dumps and Collection System” and “Contaminant Transport and Distribution in the Vicinity of the Eastside Waste Rock Dumps and the Eastside Collection System, Bingham Canyon Mine”.**

Attached are two reports titled “A Conceptual Model of Flow and Solute Transport Under the Eastside Waste Rock Dumps and Collection System” and “Contaminant Transport and Distribution in the Vicinity of the Eastside Waste Rock Dumps and the Eastside Collection System, Bingham Canyon Mine”. A third related report titled “Evaluation of Geochemical and Isotopic Techniques for Assessing the Performance of the Eastside Collection System” was submitted to the Division of Water Quality on June 12, 2001 in partial fulfillment of condition #7 of Groundwater Discharge Permit UGW350010. Using different techniques and approaches, these three reports all investigate contaminant migration pathways in the vicinity of the Eastside Waste Rock Dumps and the Eastside Collection System.

The report titled “Evaluation of Geochemical and Isotopic Techniques for Assessing the Performance of the Eastside Collection System” investigated the potential for ongoing contaminant migration around the Eastside Collection System (ECS) on the surface, and in the alluvium and shallow bedrock. The report concluded that most of the water that infiltrates into the waste rock discharges at the toe of the dump where it is immediately collected, and that the ECS is performing its designed task of collecting leach water drain-down and acid rock drainage that flows on the surface and in the alluvium. It also determined that an alluvial and shallow bedrock flow path around the cutoff walls is not generally viable because most of the cutoff walls are located in the vadose zone, well

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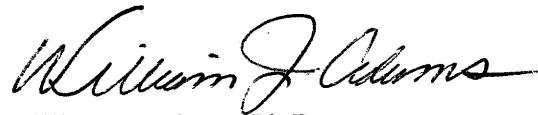
above the regional water table. The contamination that is observed in the down-gradient monitoring wells is either related to historical contamination that was released before the ECS was upgraded (pre-ECS pathway), or historical and on-going contamination that migrates through the waste rock/bedrock contact under the waste rock dumps, migrates to the water table and then travels down-gradient below the ECS (footprint pathway).

The attached report titled "A Conceptual Model of Flow and Solute Transport Under the Eastside Waste Rock Dumps and Collection System" concludes that the bedrock footprint pathway is viable and has contributed to the contamination observed in the down-gradient monitoring well network. It also concludes that sulfate is being precipitated and retarded in the bedrock underlying the waste rock dumps. However, the report did not access the relative importance of the pre-ECS pathway.

The attached report titled "Contaminant Transport and Distribution in the Vicinity of the Eastside Waste Rock Dumps and the Eastside Collection System, Bingham Canyon Mine" assesses the relative importance of both the footprint and the pre-ECS pathways. This report was originally submitted to DWQ in late 2001, but it has been modified to address comments made by Dr. Kip Solomon of the University of Utah and to incorporate all of the groundwater data available for 2001. This report concludes that the pre-ECS pathway is a significant contributor to sulfate contamination observed in the down-gradient monitoring well network. It also concludes that the contaminant flux traveling via the footprint pathway has declined dramatically with the termination of leach water application to the waste rock dumps.

Should you have any questions concerning this report, please call me at 569-7553 or Rich Borden at 569-7141.

Sincerely,

A handwritten signature in black ink, reading "William J. Adams". The signature is fluid and cursive, with a long horizontal stroke at the end.

William J. Adams, Ph.D.  
Director, Environmental Affairs

CC: Wayne Hedberg, DOGM